2003

ITACS Annual Accountability Report: FY2003 Accomplishments and Challenges

Monterey, California. Naval Postgraduate School

ITACS
Information Technology and Communications Services
Naval Postgraduate School

Annual Report
FY 2003 Accomplishments and Challenges

Introduction:

One of the guiding principles of the NPS Strategic Plan is the need to "invest in technology to fulfill our mission." Information and Technological Superiority is one of the six institutional priority areas for the Naval Postgraduate School; every goal and strategy defined in the NPS Strategic Plan is dependent either directly or indirectly on IT. Whether the focus is on the IT infrastructure, which enables service delivery to classroom, lab, and office, or on the services themselves, IT is a core element of the advanced education and research programs at NPS.

The IT Task Force is a body of NPS constituents that was formed by the Superintendent and Provost and which provides guidance on IT Policy, direction and priorities. The IT Task Force was tasked to develop the IT Strategic Plan in accordance with the Joint Vision of NPS, to recommend specific areas in which IT can be an enabling tool for scientific discovery, learning and communication at the School. The five areas of emphasis defined in the IT Strategic Plan are Network Infrastructure Issues, Academic Applications and Services, Administrative Applications and Services, IT Management and Resources, and Communication, Partnership and Outreach. The IT Strategic Plan "articulates needed initiatives, actions and resources to execute critical NPS responsibilities" within the framework of a Five-Year Plan. NPS leadership endorsed the recommendations, and financial support began in the fall of 2002. This Annual Report documents the progress that has been made in each of these core areas.

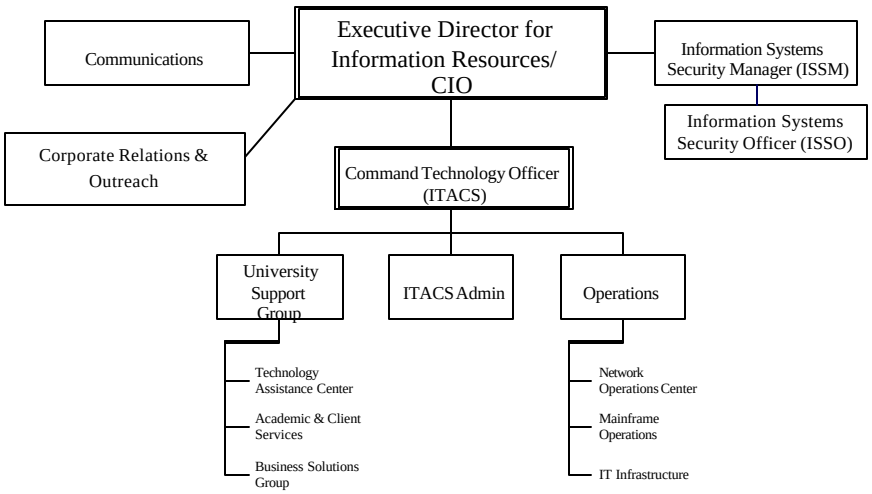
IT Fact Sheet:

The following statistics provide a picture of the scope of the NPS IT environment.

- Multiple networks – 7 and growing (two classified networks)
- 6500 campus computer accounts (faculty, staff, local and distance students)
- 4500 systems connected to the NPS networks (computers, printers, scanners)
- 1200 software applications
- 2700+ active phone lines
- Web services:
  - www.nps.navy.mil: 650,000 pages, averaging 220,000 hits per day
  - Intranet: 120,000 pages, averaging 50,000 hits per day
- Internet traffic: 55Gigabytes per day
- E-mail: 570Gigabytes and growing
- User data: 6 Terabytes
- Mainframe data: 110 Terabytes
- Backup and restore capability via the campus network: 6 Terabytes in 4 hours

Organizational Structure:

ITACS



Current staffing: 70 FTE Optimal staffing: 99 FTE Peer staffing: 196 FTE (average)

Network Infrastructure:

NPS has a complex network infrastructure, featuring a robust and modern core of fiber optics and copper. This past year the NPS Network Operations Center (NOC) upgraded its core and edge network devices to Foundry GIG-E to improve reliability and speed. The core nps.navy.mil network now includes 27 buildings, the La Mesa Housing area, and T-1 connections to DMDC and PERSEREC. Planning is well advanced for adding .edu access to the campus network for additional bandwidth and reliability. NPS is working with other local DoD commands in implementing a Virtual Private Network (VPN) called Monterey DoD Intranet using the Monterey INET GIG-E connections between FNMOC, NRL, DLI, DMDC and NPS. The NOC will support Internet Protocol Version 6, Wireless, Internet2, and two classified networks (SIPRNET and STBL net). Network reliability to the Internet is over 99%, supporting an average of 55Gigabytes of traffic per day. More detailed NOC reports are submitted weekly, and network function can be observed in real time via a Web site.

As stated in the IT Strategic Plan, an "information network extends beyond the traditional concept of simple connections between computers to include the applications, data repositories, and interoperability with the Navy Marine Corps Intranet and other allied networks, along with the required system support, and other hardware

and software that allow faculty, staff and students to access and backup the information, applications, or services they need."

- Replaced ATM Network Core with gigabit Ethernet technology.
- Participated in multiple network initiatives: NPS core (nps.navy.mil and nps.edu), Monterey INET, Internet2, SIRPNET, STBL net, SCIF net.
- Planned infrastructure support for power and network cabling for new construction and remodeling.
- Installed Networked Attached Storage.
  - Cost effective - 25% savings vs. servers.
  - Efficient I/O.
  - Simplified management for small work groups.
- Developed plan for Security Fence ring architecture, with spokes leading to NPS buildings.
- Developed a *Solarwinds* web site to provide network status information: http://orion.nps.navy.mil/NetPerfMon/View.asp?NetObject=
  - Node map of campus.
  - Status of each node.
  - Contacts to report errors.
- Implemented two wireless VLANs:
  - Production for normal work.
  - Testbed for security products associated with wireless.
- Planned NMCI implemention of Phase I.

Telephone Support:

At NPS, "the network" includes all communication support, including trunking, international calls, interstate and intrastate calls, maintenance, adds/moves/changes, calling card calls, dial-in (RAS) and administration of telephone services. When the Base Communications Office (BCO) was dissolved, the ITACS NOC assumed responsibility for all base telephone support. NPS privatized the base phone system in 2002, taking it "in-house." FY2003 costs are 47% less than the FY2001 costs for telephone services[1]. Campus telephone services are provided using an Avaya Definity G3R phone switch, with an Avaya Intuity Audix voicemail system[2].

[1] FY2001 costs were $1,228,667.59 vs. $650,000 for FY2003. Services include trunking, international calls, interstate and intrastate calls, maintenance, adds/moves/changes, calling card calls, dial-in (RAS) and administration.

[2] NPS numbers on campus and LaMesa fall between 656-6000 and 656-7999, with the exception of 7400 – 7499 which are off-campus SBC lines for LaMesa faxes and remote locations (i.e., Beach lab, Big Sur, Marina Airport, etc.)

⌖ ITACS upgraded telephone support of over 3000 active phone lines.
- o Installed 500 new digital phones.
- o Added 100 IP phones (voice over data the data network) to provide phone service where there is no phone copper.
- o Installed IP phones for all voice lines in LaMesa housing area. (LaMesa FAX lines continue to be provided by SBC.)
- o Upgraded all phones to display a light or use an audible "stutter tone" to indicate messages waiting.

⌖ Performed an average of 20+ adds, moves and changes per day.
⌖ Completed repairs calls within hours.
⌖ Established "call accounting" to provide cost reports to departments (local and long distance).
⌖ Drafted campus-wide telephone instructions for cell phones, calling cards, voice mail.
⌖ Improved correlation between phone number, name and location in accounting records.
⌖ Extended DSN capability to all lines.
⌖ Transferred all lines to FTS2001 long distance, a special government long-distance plan less expensive than commercial rates.
⌖ Pulled new copper phone lines into Herrmann West, ME, Bullard, Spanagel and Root.
⌖ Regularized phone numbers by location; gave numbers between 656-4000 and 656-5999 to FNOC/NRL.
⌖ Replaced ISDN voice with a heavily-digital in-house system.
- o Testing support for 200 ISDN data lines (including video conferencing), with DSN access.

Secure Computing Support:

ITACS also provides systems administration, software and network support for two classified labs for thesis research, class work and war games.

⌖ Moved STBL and War-Lab to new facility with improved networking and bandwidth capabilities.
- o E-mail, Web services added.
- o Expanded file, application and client services.
- o Installed full T-1 communication line.
- o Installed firewall, routers.
- o Volume of service requests more than tripled in the last quarter of FY2003.

⌖ System administration for classified networks moved to ITACS.

Security:

Data integrity, user validation, levels of access, robust servers, and compliance with all version controls, patch levels and policy mandates of the DoD and DoN are elements that effect the security of any computer system. Policies must be in place, enforced, monitored and tracked. The IT Strategic Plan called for an annual external security

audit, a crisis response team, as well as the development of IT security plans, policies and procedures.

- Appointed a full-time Information Systems Security Manager (ISSM)
  - Renewed emphasis on information assurance, server updates, planning, life cycle management.
- Developed an Information Assurance Plan.
- Initiated red team exercise through local DoD organizations.
- Worked with Network Security Group to develop protocols for incident reporting and management.
- Planned for PKI implementation.
- Set up and supported a CAC office for issuance of smart cards to all personnel attached to NPS.
  - Installed workstations and network connections for the CAC Mobile Issuance Facility in Herrmann Hall.
  - Tested the process of smart card creation.
  - Purchased smart-card capable PCs for campus labs and the PC Store.
- Engaged the ISSM as part of the network engineering design team to ensure security issues are represented at all levels of network planning.
- Developed regular communication with NETC Information Systems Security Manager.

Academic Applications and Services:

IT services in support of academics include equipment acquisition, maintenance and replacement (hardware support), software license acquisition and management, maintenance and upgrades (software support), and customer support. Support of instructional technology in both local and remote settings is also the responsibility of Academic Computing Services.

Using IT in the classroom enhances the learning experience for students. Faculty members are provided with virtual experimentation, video-conferencing, and remote data and resource access capabilities for teaching. Online- and video-conferencing-based educational courses and resources give access to non-local students. Education and training opportunities for military personnel stationed at remote locations are provided.

Classroom technology and lab support are essential elements of education at NPS. Classrooms must have the technology required by curriculum, faculty and students, and that technology must be maintained and updated at regular intervals. Classroom technology issues must be integrated within a larger Information Technology planning process to insure technical interoperability and compatibility, and to leverage resources to maximize efficiencies.

The IT Task Force has played an important role in classroom support. Before FY2003, classroom and technology upgrades were done on an ad hoc basis, as resources permitted and priorities indicated. Classroom technology upgrades were not part of any university-wide planning process. Using the University of Wisconsin model, a

systematic process of classroom technology renewal was defined, approved and presented to NETC for action. For FY04, the planning process was renamed Instructional Technology and now includes technology for NPS auditoriums and laboratories.

⌖ IT Task Force updated and approved the Classroom Technology Plan.
⌖ Classroom Technology Plan presented to NETC; $400,000 then provided in annual funding.
- o Upgraded traditional classrooms to modern standards of audiovisual support.
- o Standardized classroom technology for consistency and ease of maintenance.
- o VTE classroom upgrades improved the quality of video images transmitted to remote students.
- o Improved lighting and cameras result in improved visual communication.
- o New VTE classroom will ease the scheduling burden on the existing facilities.

⌖ NPS granted $132,000 funding to the Lab Plan proposal.
- o Lab Recap Plan purchased 136 computers, 9 black and white and 3 color printers.
- o Upgrade computers in labs to standards[3].
- o Managed the maintenance agreements for past lab plan commitments (Life Cycle Management).

⌖ Developed plan and engineering design for **.edu** implementation; plan was endorsed by the IT Task Force.
⌖ IT Task Force endorsed the wireless pilot, site survey, policy.
⌖ Implemented and security-tested the wireless network.
⌖ Developed a proposal for a streaming media initiative, with Information Sciences faculty.
⌖ Consolidated software licenses.
- o Corrected sizing for the academic mission.
- o Central management for site licenses.
- o Saved 50-70% as compared to the total retail cost of the software.
- o Posted the software list on the intranet for reference.
- o Further consolidation of software requirements and their maintenance contracts is ongoing.
  - ▪ Review needs and usage annually.
  - ▪ Maintenance contracts renewed annually.

⌖ IT Equipment Inventory completed. Data on all computers and other IT equipment on base and checked out for off-campus use is now available online.
- o Benefits include software version control, licensing management, and details of equipment numbers needed for technical support.
- o Identification of all computers used for academic, research and administrative purposes is a major step in defining the scope of computing on campus.

⌖ The DoD and the Navy are actively working toward a standard core of supported systems, in order to reduce costs and enable more effective maintenance. Coordinated NPS participation in Functional Area Manager (FAM) process.
- o DoD effort to reduce software applications to a small standard set.

[3] Pentium 4, 2.8 Gigahertz, 80 Gig hard drive, 1 Gig RAM, CD/DVD and CD/RRW, 18-inch flat panel monitor.

⌖ Procurement and installation of Library Homeland Defense System (Network Appliance System) completed.

Enterprise Services:

Administrative Applications and Services are enterprise-wide services provided to all users. They include Microsoft Office, DPAS property management, ETACS, Web services, e-mail, account management, network login and user validation, file management and server administration. Purchase and configuration of new computer systems, as well as troubleshooting and repair of older systems is routine. Compliance with DoD and DoN mandates and policies is part of the administrative purview.

A major challenge this past year was the continuation of work to implement the new student management system, PYTHON. Current and historical data were migrated from FOCUS, a mainframe-based database, to a SQL relational database on a Windows server. This web-based student management system replaced the tremendous recurring workload required to input quarterly updates to student records and changes of data in departmental systems. The shift from a centralized, mainframe-based system managed by a few key personnel to a web-based system with student, professor and staff involvement was a major paradigm shift for the School.

ITACS provides the primary database advisor on the PYTHON Advisory Board to guide the development process and advise on database modifications and enhancements. This role has provided an avenue to filter concerns and address issued to enhance the current PYTHON system or clarify future directions for the student management system.

⌖ Managed critical tasks in PYTHON:
⌖ Fixed bugs in code, made minor enhancements.
⌖ Performed quality assurance checking and error correction.
⌖ Developed web application to track PYTHON system enhancements and bug fixes.
⌖ Developed approximately 100 recurring reports.
⌖ Expanded reporting capabilities by providing Crystal Decision capability and training to NPS users.
⌖ Deployed Crystal Enterprise on NPS web server.
⌖ Managed user groups and security configuration, upgrades and patches.
⌖ Provided secure data download process for use by:

- Distance Learning, tracking tenured Faculty;
- Library for in and out student processing;
- EEO for personnel tracking;
- Comptroller for education and text reimbursement;
- Fleet Numerical access list (security office).
  - Supported SAS contractors in accessing SQL data for import into a SAS data warehouse.
  - Provided ad hoc reports for departments and groups: average grade reports; faculty theses data; student grade and theses data; SOF analysis.
  - Designed a Distance Learning (DL) Candidate registration web site that will automatically feed

student information into PYTHON.

E-mail:

Electronic mail is used by 100% of the faculty, students and staff at NPS.

- Manage e-mail stores of 570 Gigabytes and growing.
- Developed application to add country code trigraphs and contractor information to e-mail headers (Navy mandate).
- Began consolidation of the bulk mail programs and developed Web-based bulk mail programs.
- Blocked nearly 10,000 sites and addresses in response to complaints about junk mail.
- Codified existing practices by developing new policies for e-mail addressing, bulk mail, and appropriate use.
- Defined standard operating procedures for the administration and maintenance of e-mail accounts for local and remote users.
- Virus-checked all incoming mail on the Exchange mail servers.
- Resolved problems with e-mail accounts and message delivery for campus users.
- Provided user education via Web pages, Remedy calls, and direct user interaction.

Web:

Web-centric information architecture addresses the exponential growth of demand for quick access to data by computer users. Emerging technologies rely on the Web to an increasing degree. The network browser has become the tool of choice for gathering information and communication of announcements, news, research, syllabi, data, images, and threaded discussion. It supports classroom teaching, remote access to information sources, multi-media presentations (audio and video, animation), self-paced study, and data searches. The Web is the only access to the online catalog of the Dudley Knox Library, serving both on-campus and Distance Learning (DL) students and their professors. Full Web services are an essential part of the academic and research environment. Web services provide learners with a variety of virtual learning experiences and functionality, with more options for obtaining relevant information.

ITACS' Web Operations team includes the NPS Webmaster and several IIS and UNIX systems administrators with Web design skills. All of these positions include other responsibilities beyond web tasks.

- Redesigned the NPS public Web presence to incorporate the new NPS logo into http://www.nps.navy.mil.
- Ensured that NPS Web sites comply with all DoD and DoN requirements for data security and format.
- Managed 650,000 external and 120,000 internal Web pages (combined 270,000 hits per day).
- Worked with the Library to develop the Zope site for self-service posting of articles to the NPS intranet page.
- Incorporated Citrix (secure remote access to NPS applications and file servers) management.
- Implemented a web application to conduct a graduating student assessment survey.

⌖ Updated the intranet home page daily.

Account Management:

System administrators manage and monitor the thousands of computer accounts, permissions and problems for NPS computer users. Data currency and accuracy are constantly scrutinized, and maintenance is continuous.

⌖ Supported nearly 6500 campus computer accounts (Active Directory and UNIX).
⌖ Automated Windows & Exchange account management and Remedy account creation.
- o Implemented automated network and e-mail account creation.
- o Implemented automated account deletion process based on departure date.
  - ▪ Reclaimed resources more quickly.
  - ▪ Prevented possible security vulnerabilities.
- o Implemented weekly password checking and notification, to ensure robust passwords. Weak passwords are locked out and users notified.

⌖ Developed application to synchronize data in Active Directory (Exchange Global Address Book) and in PYTHON.
- o Enabled a single point of update to existing records.
- o Computer users can maintain their own personal contact information.
- o Public directories ("white pages") feed from this single source.

⌖ Consolidated ECE, CS and "campus wide" accounts into a single NIS domain.

User Support:

Customer service is the primary goal of enterprise-wide support. From providing functions like Web and e-mail, home directories and account maintenance, through procurement, installation and maintenance of hardware and software for the full campus audience, ITACS staff strives to be responsive and helpful to the NPS customer base.

⌖ Defined standard image for administrative PCs for installation of needed software and delivery of services (PC Shop).
⌖ Performed upgrade and repair of existing PCs.
⌖ Installed full multimedia desktop services on standard systems.
⌖ Extended managed Antivirus capability to assure timely updates and scans of campus computer systems.
⌖ Provided user training for MS Office Suite programs at no cost to campus audience (Word, Power Point, Outlook, Access.)
⌖ Participated in new student orientation each quarter, giving an overview of ITACS srvices and user responsibilities, to set expectations of performance and service.
⌖ Responded to problems and questions from a wide range of users, from basic information to very specific sophisticated analysis and troubleshooting.
⌖ Provided courteous, responsive service to all customers.

Technology Assistance Center:

Definition of the campus Technology Assistance Center (TAC) is a direct response to customer input. The TAC redesign team has defined the basic operating standards, training needs, and software requirements for the new customer support arm of ITACS. Implementation of new policies and technical documentation is proceeding.

The new TAC will be 3-tiered. Quick queries will be resolved by Tier 1, which is the initial contact level. Users can request assistance by phone, Web forms, or by coming to the TAC office. Tier 2 staff will solve more complex problems, which take detailed knowledge of specific hardware or software applications. Tier 3 staff are specialists who work on major projects, and serve as mentors to the other TAC staff.

- Restructuring of the old Help Desk function is a major part of the FA implementation.
- TAC provides a single point of contact for all problems, questions and needs.
- Tiered staffing matches level of skill and experience with the complexity of customers' needs.
- Professional training of TAC staff ensures knowledgeable response to customers.
- Increased staffing in a 3-tier system and extended hours of service will result in improved service.

Campus Support:

ITACS provides the underlying services, servers and connections that are the enabling technology for other campus services, like the Dudley Knox Library's online catalog, or Distributed Learning capabilities. The entire NPS organizational structure depends upon the communications and computing services provided by ITACS.

- Provided 24x7 high-speed Internet access.
- Supported 1200 application software programs on over 4500 computers, scanners and printers.
- Distributed site licensed software.
- Provided server support, Web software, and applications upgrades for the Library's online catalog (BOSUN).
- Detailed a systems administrator to the Library for PC support for public and staff computers.
- Designed and planned the optimal architecture for networking, e-mail flow, server support, user accounts, policies and other issues involved in creation of a university domain for NPS (.edu).
- Supported Homeland Digital Library project.
- NMCI. Assessed number of seats appropriate for NPS.
- Supported Provost/academic planning by generating reports for faculty page source, SOFs, teaching awards.
- Supported remote access to services (Outlook Web Access, RAS dial-in, Citrix, Web-enabled services).
- Worked with the Office of Continuous Learning to consolidate technical support within ITACS.

⌖ Supported Institutional Research development with web-based surveys, data warehouse planning, fact book data, etc.
⌖ Supported the Human Resources Management Information System.
⌖ Consolidated mail services, DNS services, time synchronization, domains, secure authentication on UNIX servers.
⌖ Began migration of UNIX Web directories, to avoid public files on internal-only servers.
⌖ Expanded remote management of computer systems via Dameware.
⌖ Supported tenant activies like DMDC, MOVES, MWR (involves file storage, e-mail, policies, backup, etc.).

Communication, Partnerships and Outreach:

Since IT is a strategic institutional priority, communication about IT matters must be frequent, timely and accessible to all members of the NPS community. In order to ensure the most efficient and accurate dissemination of information, ITACS has forged partnerships with both campus and community groups, established a newsletter and new reporting mechanisms, and is exploiting Web capabilities, presentations, program agendas for important campus visitors, and other means to expand the modalities of communications about NPS IT. Establishing working relationships with senior officials of both Navy and commercial IT organizations is an important aspect of Outreach.

⌖ Hosted Department of Navy Chief Information Officer, Dave Wennergren, in July 2003.
⌖ Scheduled quarterly videoconferences with DoN CIO and his senior staff and NPS faculty leaders.
⌖ Planned IT needs for RCI – housing for Ord Military Community.
- GIG-E, wireless, fiber to the home included.

⌖ Hosted NETC CIO visit in July 2003.
⌖ Hosted NMCI-related visit in December 2002 (NETC).
⌖ Met with Library leadership weekly.
- Worked together on IT requirements for Homeland Security Digital Library.
- Worked together on plans for Technology Assistance Center.

⌖ Developing local DoD intranet with DMDC, NRL, FNMOC, and DLI.
- Agenda will include IT security, IT professional staff training, disaster recovery and network attached storage.

⌖ Member of Monterey Peninsula I-Net, CIO serves on Steering Committee, and co-chairs Infrastructure Subcommittee.
⌖ Meeting with Gordon Eubanks, NPS alum and president of OBLIX. Hosted subsequent October campus visit with Department of Computer Science.
⌖ Meeting with Greg Papadopoulos, Chief Technology Officer at Sun Microsystems. Hosted campus visit in July 2003
⌖ Joined Internet2, support for NPS faculty/student committee on Internet2-related research at NPS.
⌖ Worked with Institutional Advancement on Support of Foundation activities:
- Developing partnership with Foundry Networks.
- Promotion of NPS network enhancements and partnership with Monterey Peninsula I-Net.
- Partnership resulted in $465,000 gift of network equipment and $40,000 in cash to the NPS Foundation.

⌖ NPS CIO serves as ex officio member of Access Monterey Peninsula Board of Advisors.
⌖ Scheduled twice-yearly meetings with department chairs and faculty groups about IT Strategic Plan progress and other IT-related issues.
⌖ Reviewed Naval Training Education Management Program, hosting site visit by program manager Martha Maddux (NETC).
⌖ Created Navy.edu CIO group – first meeting to be held in late 2003.
⌖ Established liaison with Public Works, Housing, Security Group, EFA West, Library, CEE, DL, PYTHON Group, labs.
⌖ Initiated monthly Technology News e-newsletter as vehicle to communicate regularly with our customers.
⌖ Established monthly Staff News e-newsletter to improve peer communication within ITACS.

Operations:

The "machine room" is the traditional heart of computer services. Protected by UPS against the vagaries of PG&E power, monitored by staff around the clock, the servers and communications equipment in the "glass house" are the hub of network, telephone, backup, e-mail, Web and file services to all NPS account holders. Centralized services hardware is based in the operations area.

⌖ Full production on the IBM Automated Tape Library and Virtual Tape Subsystem.
- o Removed two StorageTec Silos to free valuable floor space for newer equipment.
- o Upgraded IBM Mainframe software to more secure levels. Working on SSL for all systems.

⌖ Campus data backup solution expanded.
- o Tivoli, Shark, multi-level storage (hard disk and high-capacity tape library).
- o Backup capabilities upgraded to 6 terabytes in 4 hours.
- o Defined disaster recovery policy and SOPs (FIT).

⌖ Assisted OR in the installation of an IBM P690 Server.
⌖ Removed Cray computer from service; phased out other obsolete servers.

IT Management and Resources:

Accountability and responsiveness to institutional goals are the priorities of ITACS leaders. Substantial time and effort have been expended to update the organizational structure, titles and position descriptions for the staff, and to revitalize the IT reporting capability and budget process. All policies and standard operating procedures are being reviewed, updated and rewritten. The FA Study has been completed and is being implemented, with multiple teams working toward strategic goals. ITACS managers have been aggressively demonstrating the need for increased staffing, and for training of existing personnel, and the School's leadership has responded positively.

⌖ IT Task Force organized and meeting regularly for campus input to IT Strategic Plan.
⌖ Developed the NPS Information Technology Plan for FY 03-06, in conjunction with the NPS IT Strategic Plan, to articulate a common vision for technology and identify strategies that will help the School use technology to promote student achievement, provide access to School services, and improve business processes.
⌖ Finished the IT Functional Assessment (FA) Study. NPS engaged BearingPoint to assist the Information Technology Functional Assessment Team in developing the Most Efficient Organization to support the NPS mission. Team members were selected for their in-depth knowledge of the ITACS organization and the specific requirements of their NPS customers. Representatives from Human Resources, the Federation of Federal Employees (NFFE) Local 1690, Comptroller and Student Services also participated in the process. The Team studied workload data, analyzed business processes, organizational design, the NPS environment, and IT complexity, using Activity Based Costing principles. It identified changes that needed to be made, and recommended a new structure for the organization. The FA Study Report was accepted by NPS administration in April 2003.
⌖ Implementation of the IT FA study. Functional Implementation Teams (FITs) were defined in the major areas identified by the FA Team (Manage Applications and Databases, Technology Assistance Center, Special Projects, Monitor Systems, Disaster Recovery, Remote Client Management and ESD Tools, Standards Development (Hardware and Software), Procurement Policy, and Communications Strategies) to create plans, processes and define requirements for moving to the new organizational structure. Most ITACS staff members, and many people in other campus organizations are working toward implementation of the FA Study Report recommendations:
- Restructuring of the ITACS organization,
- Reviewing the culture of technology support at NPS,
- Rewriting of policies and SOPs.

⌖ IT Strategic Plan: printing, distribution, communication, implementation, updating.
⌖ Steering Committee involvement with CENIC, CalRen.
⌖ Assigned professional trained (CPA certified) financial manager to oversee IT financial budgeting, management.
- Monthly financial reports on ITACS.

⌖ Developed annual reporting mechanism for accountability, review with NPS community, etc.
⌖ Worked with Foundation in receiving $365K in high performance network equipment and $40K in cash, in support of Internet2-related research.
⌖ Researched nationally used customer satisfaction survey instruments. Revised one used at the University of Indiana for the last 20 years.

Funds Management in FY03:

Financial management improvements have been made in FY03: executive management receives a monthly IT financial report of operating funds, excluding telephones and labor, by the major expense categories shown below. IT management meets and reviews actual to planned expenditures on a quarterly basis, and briefs the Superintendent on progress toward Strategic Plan goals as well as ongoing operations.

Networks comprise the largest expense category in part due to major lifecycle upgrades of the network equipment to Gig backbone, and to the benefit of equipment donated via the partnership with Foundry Networks. The Strategic Plan initiatives comprise the second largest expenditure, and include the categories of ISDN switch, streaming media and .edu / INET / Internet2. Functional Assessment implementation is the third largest category, to purchase software and hardware that supports the Technical Assistance Center in tracking customer help calls and the Network Operations Center in security monitoring of network operations. The remaining categories comprise the last 20% of the FY03 budget execution, and include license renewals and maintenance, training and travel, lifecycle replacement and supplies.

In October of FY03, the ITACS department received $810,000 for its operating budget. A few months later, the department was given an additional $600K from the Superintendent to support the recommendation in the IT Strategic Plan that the ITACS operating budget be increased to reflect the requirements of supporting the NPS IT environment. The total operating budget for FY03 was $1.41 million.

The total labor budget was $4.11 million to support 63 full-time staff members.

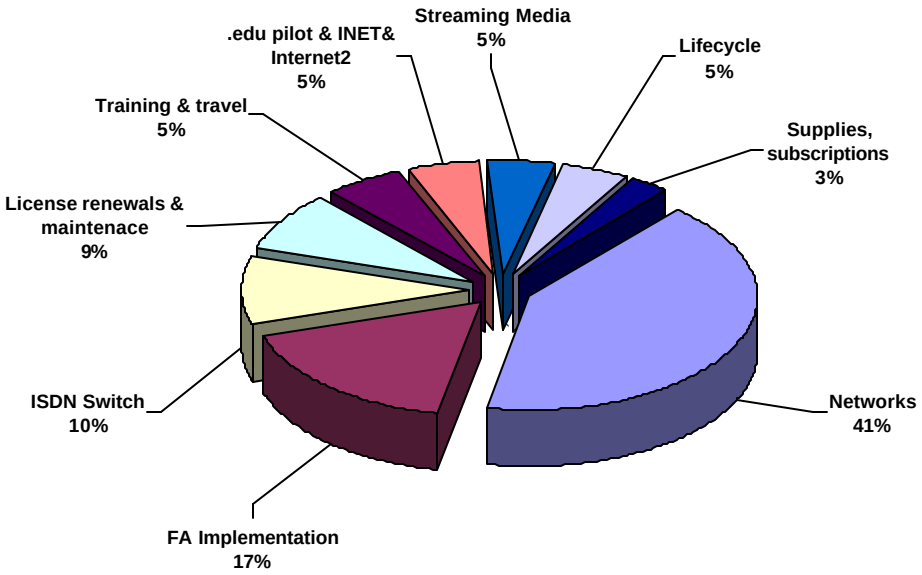
In addition to the above, ITACS applied for year-end funding for specific IT Strategic Plan initiatives. $1.02 million was received for the following projects:

Initiative:	(000s)	Funding source:
Security wall	$216	NAVSECGRP
ISDN	$324	NETC EOY
Streaming media capability	$180	NETC EOY
HPC Linux cluster not funded	$ 50	OC and MR – recommended but
IT FA	$300	NPS EOY

$289K was also requested for wireless implementation but this request was not funded. $50K was requested to support a Linux cluster, but this proposal was also not funded.

The following chart shows the FY03 use of operating funds by general category of expenditure:

FY03 Use of Operating Funds:



Return on Investment:

During 2003, classroom technology, faculty and IT infrastructure benefited from IT strategic management, collaborative and financial investments in technology, partnerships and outreach.

The core of our physical institution, the classrooms, were first to benefit from a multi-departmental, collaborative NPS plan approved by NETC early in FY03 for classroom technology upgrade – NPS received a direct infusion of $400K from NETC.

An investment in a new telephone system, owned by NPS, saved the university $350,000 the first year and that amount is carried forward annually.

Through partnership with the Monterey Bay Regional Training Consortium and by developing a multi-year training program that will be phased in to provide maximum training opportunities for all ITACS professional staff, ITACS was able to receive extremely good value for a contract for training. Compared with similar contract at NPS earlier in the year, the savings was approximately 40%.

The core of our intellectual mission, our NPS faculty, benefited from a strategic relationship built with DoN CIO. NPS received end of year investment of $230K for research in support of four research projects: information assurance (Cynthia Irvine), wireless security (Brian Steckler), E-Transformation (Tom Housel), and Virtual Environments (Joe Sullivan).

The IT infrastructure benefited from a powerful combination of internal, corporate, local DoD and local civilian university partnerships in engineering and funding through joint memberships.

- Internal investments included a new phone switch and in-house phone system management, resulting in annual savings of 40%. Updates to network backbone, network storage and campus-wide backup technology were another significant return on investment, realizing a campus-wide Gigabit backbone, 25% savings in data storage space and achieving daily backup of 6 terabytes of data in 50% of the time previously required.

- Strong affiliation between NPS ITACS and the NPS Foundation proved fruitful in a gift of $400K of network equipment and discretionary funding from Foundry Networks. The gift was awarded to the NPS Foundation and then granted to the Internet2 Committee to support high-speed network research.

- Local DoD collaboration included a new Gigabit Ethernet link joining NPS to Fleet Numerical Meteorology and Oceanography Center and Naval Research Laboratory. This new Gigabit link allows the sharing of High Performance Computing resources and datasets for research and forecasting applications.

- NPS also partnered with the City of Monterey and California State University in a group membership to CENIC, saving $900K annually while allowing NPS research critical access to Internet2 via CALREN, the information highway of higher education institutions in California.

Through leveraging several concurrent strategic investments in Information Technology, NPS was able to save costs in some initiatives, avoid future costs in others, and enjoy the multiplied positive consequences of those original investments.

Future Challenges:

To meet increasing demands on IT by our academic community, NPS must continue to focus on the recommendations in the IT Strategic Plan. Much has been accomplished in the past year, but much more remains to be addressed. ITACS needs both resources and training to meet the challenges of the strategic goals. Those challenges include:

- ITACS budget for FY04 must support essential IT services: network, hardware, staffing, training, Web-enabled applications.
- Finish implementation of the IT FA study as part of the new ITACS organization.
- Diagramming the IT infrastructure.
- Running a network and phone system with limited personnel.
- Implementation of .edu
- Implementation of security wall for wireless and network access for the general public.
- Implementation of new firewall.
- Upgrade network connections for Public Works buildings.
- Implement Monterey DoD Intranet.
- SPAM filtering.
  - Largely ineffective to date, due to the phenomenal growth of the problem and the limited, completely manual tools available at NPS to filter incoming mail.
  - The filter file is now blocking literally thousands of sites, but the flood of junk mail is unabated.
- Establish Technology Assistance Center
- Professional development of IT staff must emphasize core competencies and continuing education.
- Resume 24x7 staffing in Operations.
- Extended hours 7 days a week for TAC.
- Increase modalities of communication about IT issues.
- Continue engagement with RCI to ensure technology plan is implemented.
- PKI implementation.
- Classroom Technology updates.
- Information Assurance Plan.
- Corporate relations – continue work on educational partnerships.
- Include Instructional Technology as part of Information Resources
- Expand life-cycle management to more areas within NPS.
- Explore NPS membership in CENIC.
- Phase I NMCI implementation.
- Continue documentation of return on IT investment.
- Administer first customer satisfaction survey.
- External security audit.
- HPC capability plan.
- Disaster recovery plan.
- Future follow-on tasks relating to Python:
  - Increase PYTHON functionality to include: CIVINS; DL; CEE; CCMR; DRMI; DHMI; Aviation Safety; Alumni; Space Planning; Faculty Management.
  - Version enhancements to include: Scheduling; Schieffelin Awards; SOF management; Admissions support.
  - Connecting MWR bookstore to the network to access PYTHON for book purchase functionality.
  - Offsite disaster recovery.
- Assist in implementation of web redesign.
- Implementation of wireless environment.
- Continue building ties with DoN CIO.

⌖ Planning network architecture to include campus perimeter (security fence).
⌖ Continue expansion of network attached storage.
⌖ Implement telephone statement reporting.
⌖ Continue replacement of telephone instruments.

IT Directory:

Information Technology and Communications Systems (ITACS) Managers	
Christine Cermak	Executive Director of Information Resources and Command Information Officer
Tom Halwachs	Command Technology Officer
Hank Hankins	Director of Operations
Joe LoPiccolo	Director of University Support Group
[To Be Determined]	Director, ITACS Administration
Terri Brutzman	Information Systems Security Manager
Todd Pugh	Special Assistant to the CIO; Director of Corporate Relations; Program Manager, NMCI
Jodie Dodge	Director of Institutional Research

Information Technology Strategic Planning Task Force	
Chris Arias, Student Services	Dick Harkins, Physics
Alex Bordetsky, Information Science	Stephen Hurst, SIGS
Doug Brinkley, GSBPP	Jeff Knorr, Electrical Engineering
Don Brutzman, Information Science	Joe LoPiccolo, ITACS
Terri Brutzman, ISSM	Julie McClean, Oceanography*
Christine Cermak, CIO	Rudy Panholzer, Space Systems
Vince Darago, OCL	Todd Pugh, ITACS
Peter Denning, Computer Science	Megan Reilly, CFO
Douglas Fouts, Electrical Engineering	Vic Ross, Student
Lillian Gassie, Library	Robert Simeral, CSO
Tom Halwachs, ITACS	Chris Vance, Information Professional Community
Tracy Hammond, Registrar	
Hank Hankins, ITACS	

** Faculty Council*